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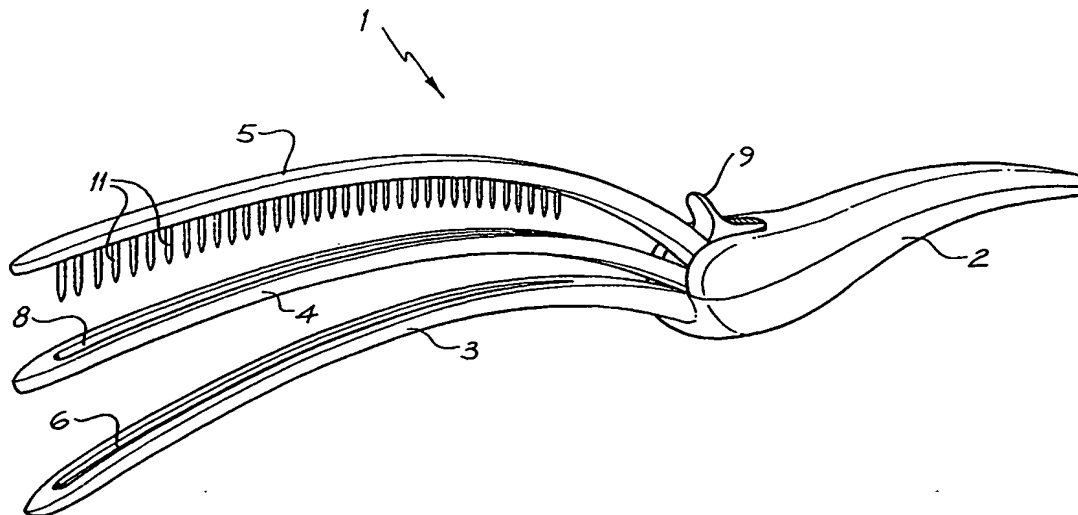
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Three fingers  
All fingers lie radial  
to head

(54) Title: HAIR GROOMING DEVICES



(57) Abstract

A hair grooming device, in particular a device (1) that facilitates the cutting and styling of hair at home, as well as at the salon. The device (1) has a handle (2) with one or more fingers (3, 4) extending from it. The fingers (3, 4) may be curved to conform to the shape of the head. At least one of the fingers (3, 4) has a slot (8) extending along its length. A comb (5) carrying teeth (11) extends adjacent the length of the/each slotted finger (3, 4) and is moveable between a retracted position in which it is spaced apart from the slot (8), and an engaged position in which the teeth (11) intersect the slot (8) to grip hair along the length of the slotted finger (3). A method of using the device is a further aspect of the invention.

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## HAIR GROOMING DEVICES

### Technical Field

5 This invention concerns hair grooming devices, and in particular devices that facilitate the cutting and styling of hair at home, as well as in the salon. In a further aspect the invention is a method of using the devices.

### Background Art

10 Barbers and hairdressers have used simple scissors and combs for many years to cut and style hair. For some short haircuts it has been possible to use electric shears, and there are many attachments available for the shears to control the length and profile of the cut. Nevertheless, apart from the simplest cuts it has been difficult for people to cut and style their own hair, because of the skill required to achieve a good result.

15

### Summary of the Invention

The invention is a hair grooming device having a handle with one or more fingers extending from it. The fingers may be curved to conform to the shape of the head, and a circular arc has been found to be suitable for this purpose. At least one of the fingers has a slot extending along its length. A comb carrying teeth extends adjacent the length of the, or each, slotted finger and is moveable relative to the adjacent slotted finger between a retracted position in which it is spaced apart from the slot, and an engaged position in which the teeth intersect the slot to grip hair along the length of the slotted finger. It should be appreciated that the slot may be open, that is an aperture that passes entirely through the finger, or closed, that is a groove in the surface of the finger, and that both types of slot may operate in the same way.

25

In use, the device is manipulated so that the finger, or fingers, are positioned in the hair with the comb, or combs, retracted so that hair enters the space between the comb and the finger. When the device is in the desired location, the comb is moved to grip hair along the length of the finger. The device is then manipulated to comb through the hair until it defines the line along which the hair is to be cut. Scissors or shears may then be used to cut the hair along a surface of the finger.

30

The combs may be spring biased into either the extended or retracted positions. Manipulation of the device may then cause the combs to be temporarily moved out of the biased position.

5 The finger or fingers may be run along the scalp and then the comb is engaged before the hair is lifted and cut, so that a complete layer of hair is cut at one time. The finger or fingers may also be run along the scalp and then the comb is engaged before the device is tilted about the point where the fingers meet the handle, to enable a complete layer to be cut along an angle.

10 In one example there is a single slotted finger. The comb and slotted finger are pivotally connected to each other at their bases where they meet the handle. The comb is operable to move towards and away from the finger. When the comb is moved towards the finger the teeth enter the slot. The comb may be slid into the hair and then manipulated to grip the hair with the desired pressure, and to accommodate different volumes of hair captured  
15 between the comb and finger. In this device the comb may be biased into the extended position where it resides in the slot.

The slotted finger may have an open slot, and a further finger may lie below the slotted finger. The further finger may have a closed slot, or groove, in its upper surface. The teeth of the comb may pass through the open slot  
20 and into the slot or groove of the further finger when it is moved to the engaged position.

Once the hair is engaged in the teeth of the comb, the device is moved through the hair until it defines the end shape, such as the shape of the fringe, side of the face, or nape of the neck. The hair is then cut using  
25 scissors or shears.

In another example there are several slotted fingers arranged side by side. The fingers are closely spaced, but may be flexible so they can be combed through the hair. In this example there are slots in the fingers that are aligned with each other, and combs are arranged inside the slots. In this  
30 example the combs are operable to move out of the slots so that the teeth extend into a slot in an adjacent finger. In this example the combs may be biased into the extended position where they enter the adjacent slots.

This example of the device may be slid into the hair along the scalp before the combs are engaged. The device may then be lifted or tilted before  
35 layers are cut into the hair using scissors or shears.

5 The finger, or fingers, may be curved in the plane of its slot, and the teeth of the comb may be coplanar, with the ends of the teeth lying along a curve which matches the curve of the fingers. Alternatively, the back of the comb may be curved so that adjacent teeth are offset from one another, and the finger may be curved so that its slot is curved. The curve could also be more complicated and include curvature in both orthogonal directions mentioned above.

10 It is a particular advantage of the device that it enables longer hair styles to be cut with shears or hair clippers.

### Brief Description of the Drawings

An example of the invention will now be described with reference to the drawings, in which:

15 Figure 1 is a pictorial view of a first hair grooming device exemplifying the invention;

Figure 2 is an exploded view of the hair grooming device of Figure 1.

Figure 3a pictorial view of a second hair grooming device exemplifying the invention; and

Figure 4 is a plan view of the hair grooming device of Figure 3.

20 Figure 5 is a reverse plan view of the hair grooming device of Figure 3.

Figure 6 is a plan view of the comb with the hair grooming device of Figure 3.

### Best Modes for Carrying out the Invention

25 Referring first to figures 1 and 2, the first hair grooming device 1 has a handle 2 from one end of which three curved fingers 3, 4 and 5 extend. The three curved fingers 3, 4 and 5 all have the same curvature.

The first curved finger 3 is fixed in position relative to the handle 2. It has a "v" shaped groove 6 running along its upper surface.

30 The second curved finger 4 is able to rotate through a short arc relative the finger 3, about axis 7. The finger 4 has a vertical slot 8 running along almost its entire length.

The third curved finger 5 is able to be lifted by pulling up on formation 9 and is able to rotate about axis 10, through a larger arc than second finger 4.

35 Third curved finger 5 has a row of teeth 11 running along its lower surface, and can be thought of as a "comb".

When the device is held by handle 2, formation 9 can conveniently be raised by the thumb. Raising formation 9, raises comb 5 but forces down the internal end 12 of finger 5. This in turn forces down the internal end 13 of finger 4 which raises finger 4 so that there is separation between fingers 3, 4 and 5. Pressing down on formation 9 closes all the fingers 3, 4 and 5 together. When closed together the teeth 11 of comb 5 enter slot 8 and the distal ends of the teeth 11 enter the "v" shaped groove 6 in finger 3.

The curvature of all three fingers is in the plane of the slot 8, or put another way, the plane of the teeth 11 of comb 5.

In use the handle 2 is grasped in one hand, and one of the fingers, or the thumb, of that hand may be used to raise and lower the fingers when required. Initially the fingers are not pressed together but are splayed apart as shown in Figure 1. In this configuration the curved fingers may be pushed into the hair so that hair enters the spaces between the fingers. For instance, the fringe may be combed down onto the forehead, and the first finger 3 may be run across the forehead under the hair so that the fringe enters the spaces between the fingers.

When the curved fingers are positioned in the hair at the desired position, the fingers may be pressed together to capture the hair. The teeth 11 along the comb 5 pass through the hair and grip it in position so that it cannot slide along the length of the fingers. The hair is held gripped in this position, and can be lifted and cut using scissors or shears held in the other hand. The free ends of the hair may be cut closely along the side the device.

Referring now Figures 3, 4, 5 and 6, a second device 20 has a wide handle 21 from the front of which extends a row of six curved fingers 22. The fingers have an approximately square section and there is a very fine gap between each pair of adjacent fingers. Each of the fingers has a pointed end 23 and a slot 24 extending along its length and laterally through it.

A curved series of combs 25, shown in plan view in Figure 6, resides inside the device 20. The series of combs 25 comprises five ganged combs 26 having sideways extending teeth 27, and there is a further 'blank' comb 28 without any teeth. Each of the combs 26 and the 'blank' comb 28 resides in a respective slot 24 of the device.

Along the length of each of the combs 26 and 28 there are two diagonally extending slots 29 and 30. Pins 31 and 32 extend from the inside

of each of the fingers 22 into the slots 24 and ride in respective diagonal slots 29 and 30 to control the movement of the combs.

The combs are ganged together and interconnected at a union 33. A button 34 extends up from the union 33 and through a shaped aperture 35 on the handle 21. A spring 36 is integrally moulded into the base of the union 33, and acts against the inside of the housing 21 to bias the combs out of their respective fingers.

Movement of the button 34 within the aperture 35 moves the combs in unison back into their slots. When the combs 26 move out of their slots 24 the teeth 27 extend into the back of the slot of the adjacent finger. When button 34 is operated the combs move back into their slots against the action of spring 36. The shape of the diagonal apertures 29 and 30 determines the path of the series of combs 25.

In use, the handle 21 is gripped in one hand and a finger or the thumb may is used to operate the button 33 to retract the combs. The curved fingers 22 may then be run along the scalp. The pointed ends 23 of the fingers 22 part the hair so that it runs into the very fine gaps between the fingers. When the fingers are in the desired position the button 34 is released so that the combs 26 and 28 move out of their slots 24 and the teeth 27 engage the hair. When it is engaged, the hair cannot move along the fingers. The fingers 22 are then lifted. It is then possible to cut the hair along a surface of the fingers with scissors or shears held in the other hand.

The hair may be lifted by lifting the entire device away from the head, or the device may be tilted about the edge at 37 to lift the hair. The hair may be cut closely along the upper surface 38 of the device.

A key 39 is provided in the underside of the device to enable it to be dismantled for cleaning.

Although the invention has been described with reference to the two best examples it should be appreciated that it could be exemplified in other forms and they may be operated in different ways than those described. For instance, the handle may be shaped in any convenient fashion. The finger or fingers may be curved differently, or they may be plastically deformable to enable them to temporarily adopt any desired shape. A favoured arrangement involves the use of a mechanism activated by squeezing the handle to close the fingers together. The combs may be biased either into or

out of the fingers either as described or otherwise. The device may also be used in hair colouring processes to define boundaries for the hair colouring.

5 It will be appreciated by persons skilled in the art that numerous variations and/or modifications may be made to the invention as shown in the specific embodiments without departing from the spirit or scope of the invention as broadly described. The present embodiments are, therefore, to be considered in all respects as illustrative and not restrictive.



## CLAIMS:

1. A hair grooming device having a handle with one or more fingers extending from it, at least one of the fingers has a slot extending along its length, a comb carrying teeth extends adjacent the slot and is moveable  
5 between a retracted position in which it is spaced apart from the slot, and an engaged position in which the teeth intersect the slot to grip hair along the length of the slotted finger.
2. A hair grooming device according to claim 1, where the slot is open.
3. A hair grooming device according to claim 1, where the slot is closed.
- 10 4. A hair grooming device according to claim 1, where the slotted finger is curved to conform to the shape of the head.
5. A hair grooming device according to claim 4, where the finger is curved in a circular arc.
6. A hair grooming device according to claim 1, where the slotted finger  
15 is curved in the plane of its slot, and the teeth of the comb are coplanar, with the ends of the teeth lying along a curve which matches the curve of the fingers.
7. A hair grooming device according to claim 1, where the back of the comb is curved so that adjacent teeth are offset from one another, and the  
20 slotted finger is curved so that its slot is curved.
8. A hair grooming device according to claim 6, where there is a single slotted finger, the comb and slotted finger are pivotally connected to each other at their bases where they meet the handle, the device is operable to move the comb towards and away from the finger so that when the comb is  
25 moved towards the finger the teeth enter the slot.
9. A hair grooming device according to claim 8, where a further finger lies below the slotted finger, the further finger has a groove in its upper surface, and the device is operable such that the teeth of the comb pass through the slot of the slotted finger and into the groove.
- 30 10. A hair grooming device according to claim 7, where there are several slotted fingers arranged side by side, there are slots in the fingers that are aligned with each other, and combs are arranged inside the slots, the combs are operable to move out of the slots so that the teeth extend into a slot in an adjacent finger.
- 35 11. A hair grooming device according to claim 10, where the combs are biased out of the slots.

12. A method of using the device of any preceding claim, comprising the steps of:

manipulating the device so that the finger, or fingers, are positioned in the hair with the comb, or combs, retracted so that hair enters the space  
5 between the comb and the finger;

then, when the device is in the desired location, the comb is moved to grip hair along the length of the finger;

the device is then manipulated to comb through the hair until it defines the line along which the hair is to be cut;

10 scissors or shears are then be used to cut the hair along a surface of the finger.

13. The method of claim 12, comprising the additional steps of:

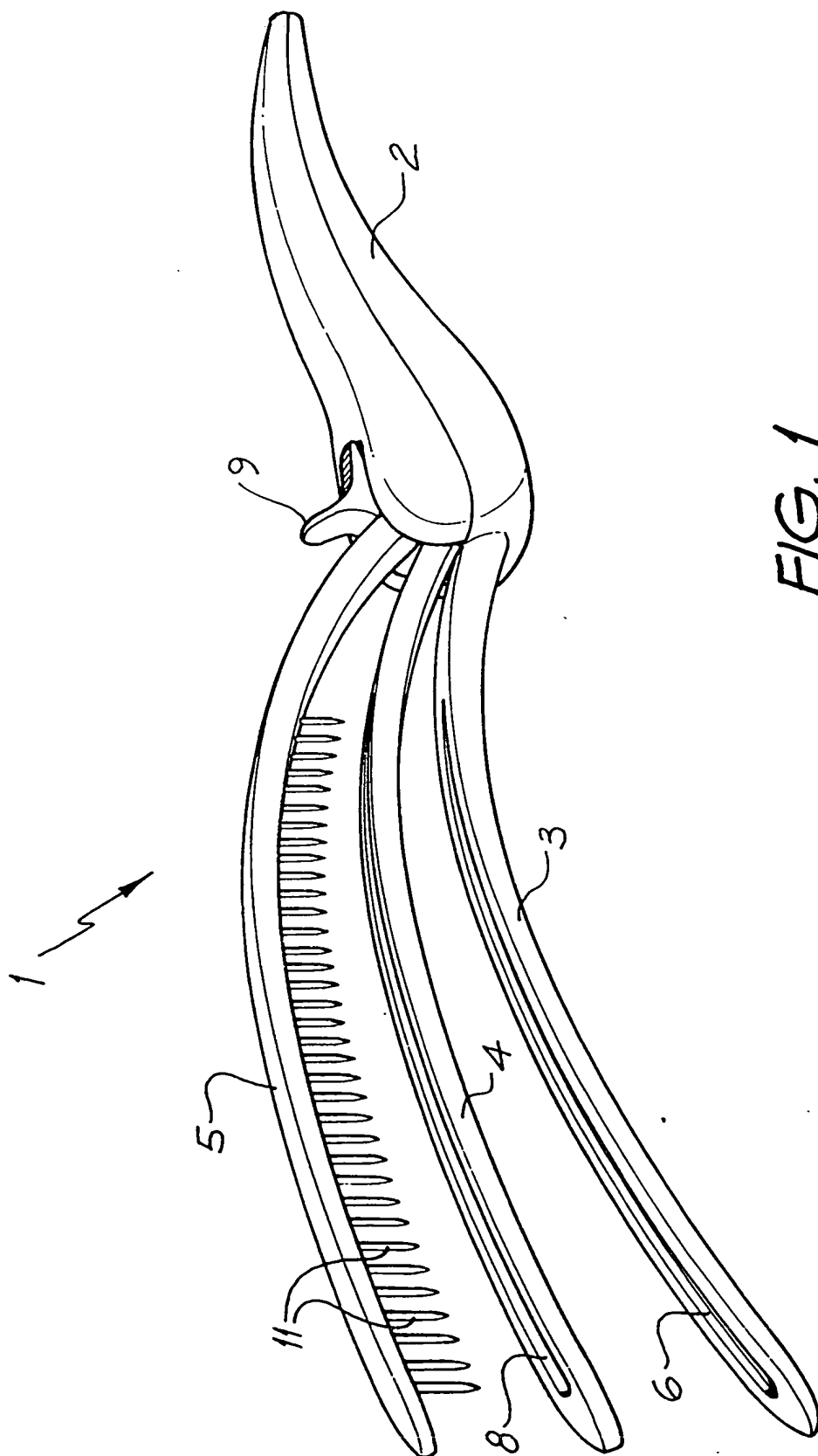
running the finger or fingers along the scalp;

engaging the comb;

15 lifting the hair and then cutting it.

14. The method of claim 13, where the lifting step involves tilting the device.

20



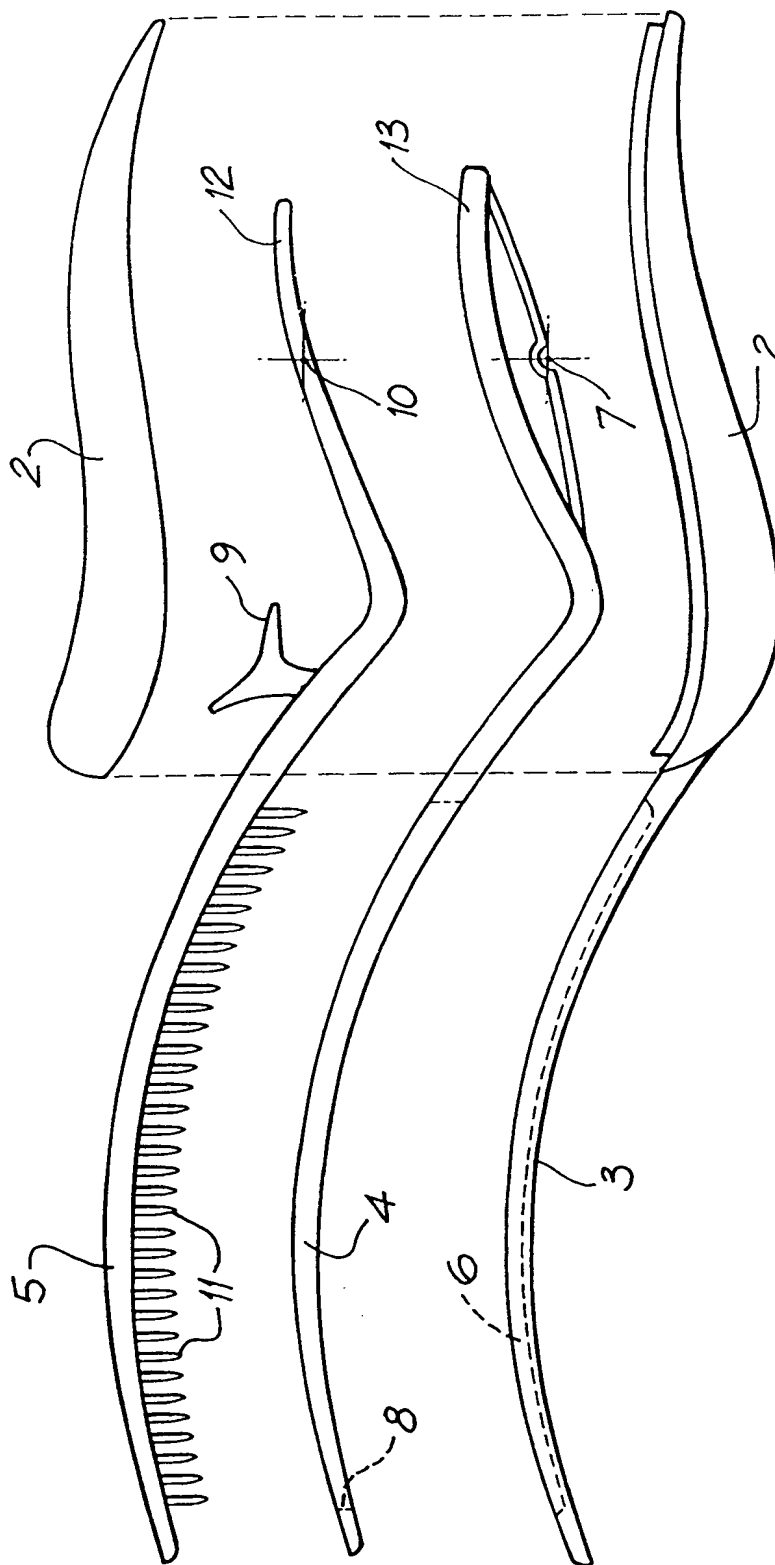
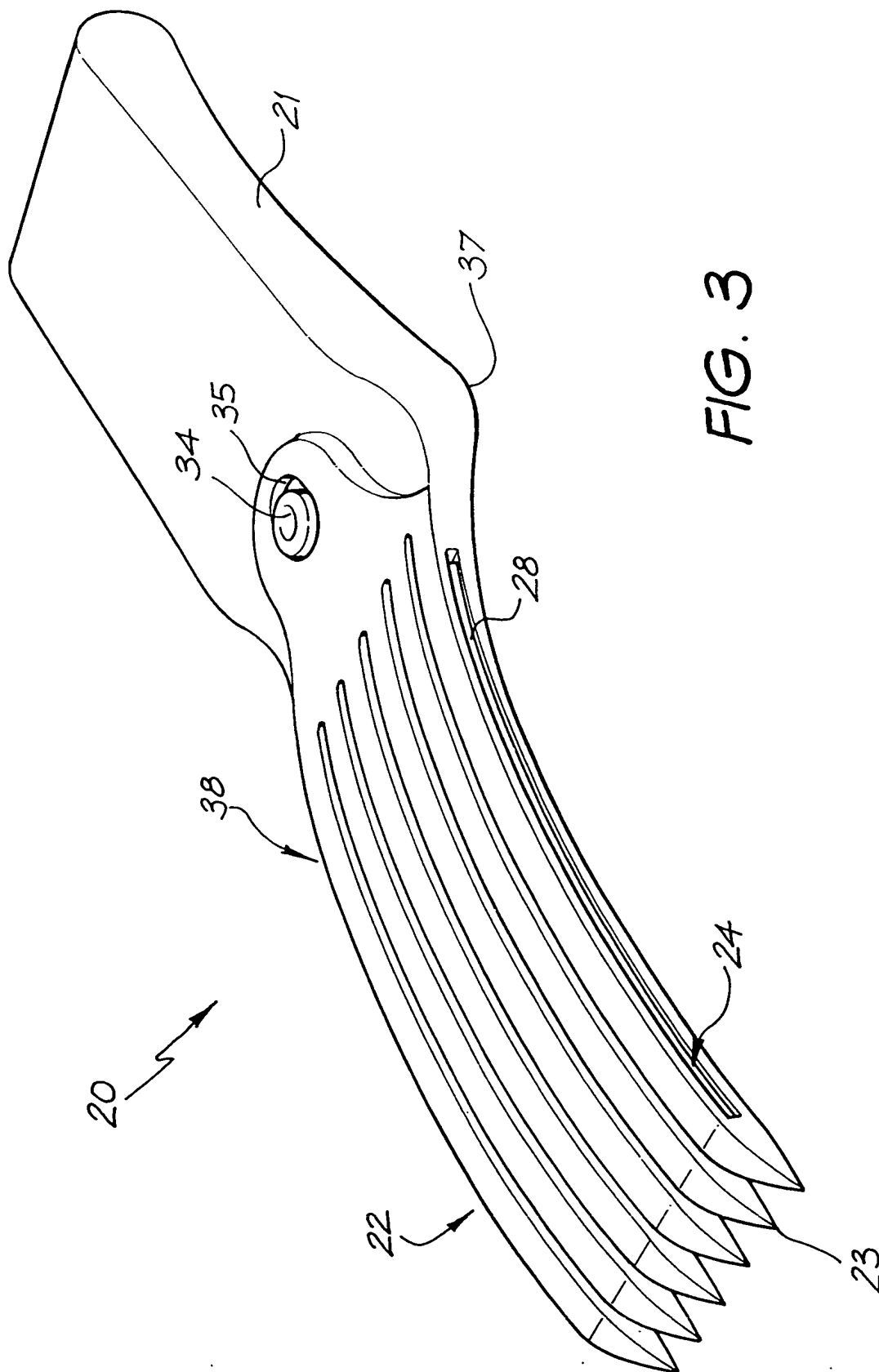


FIG. 2



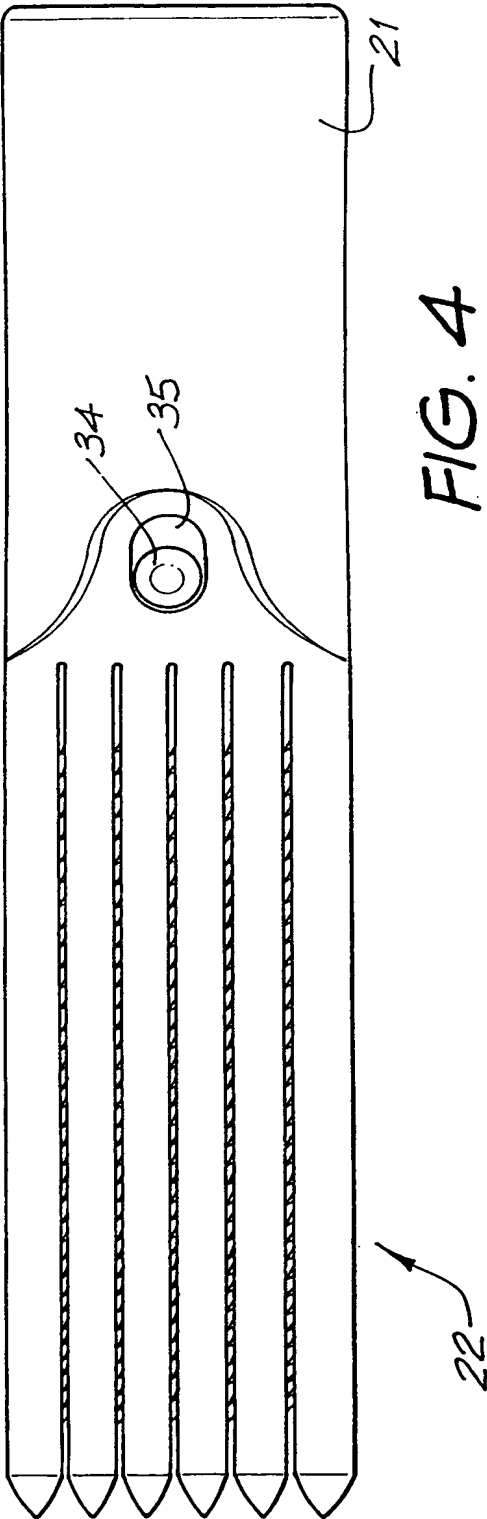


FIG. 4

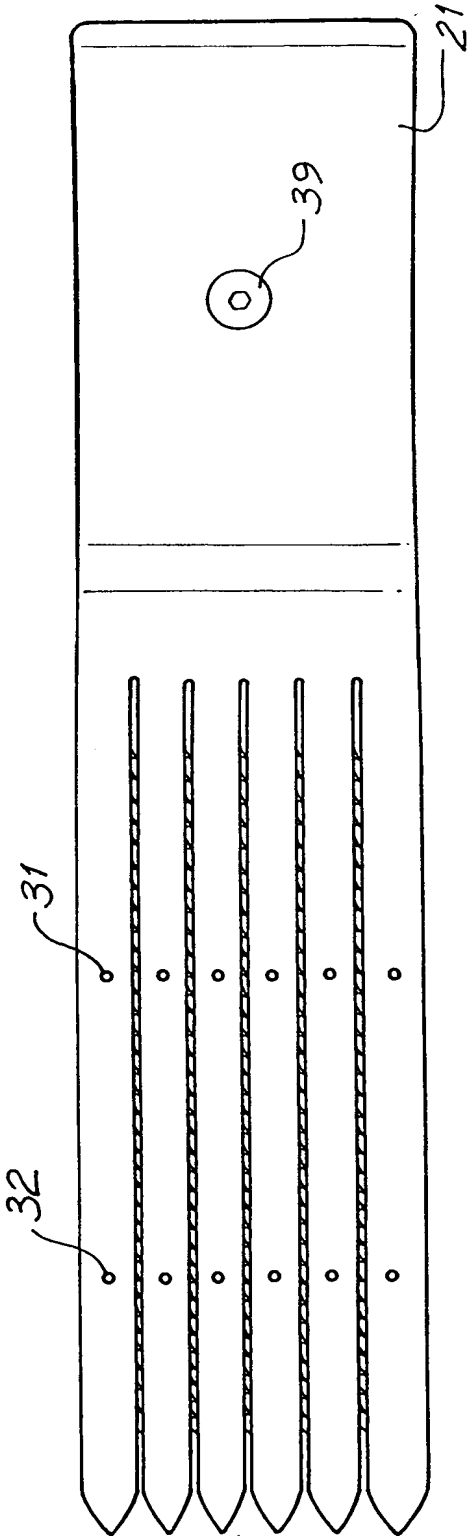


FIG. 5

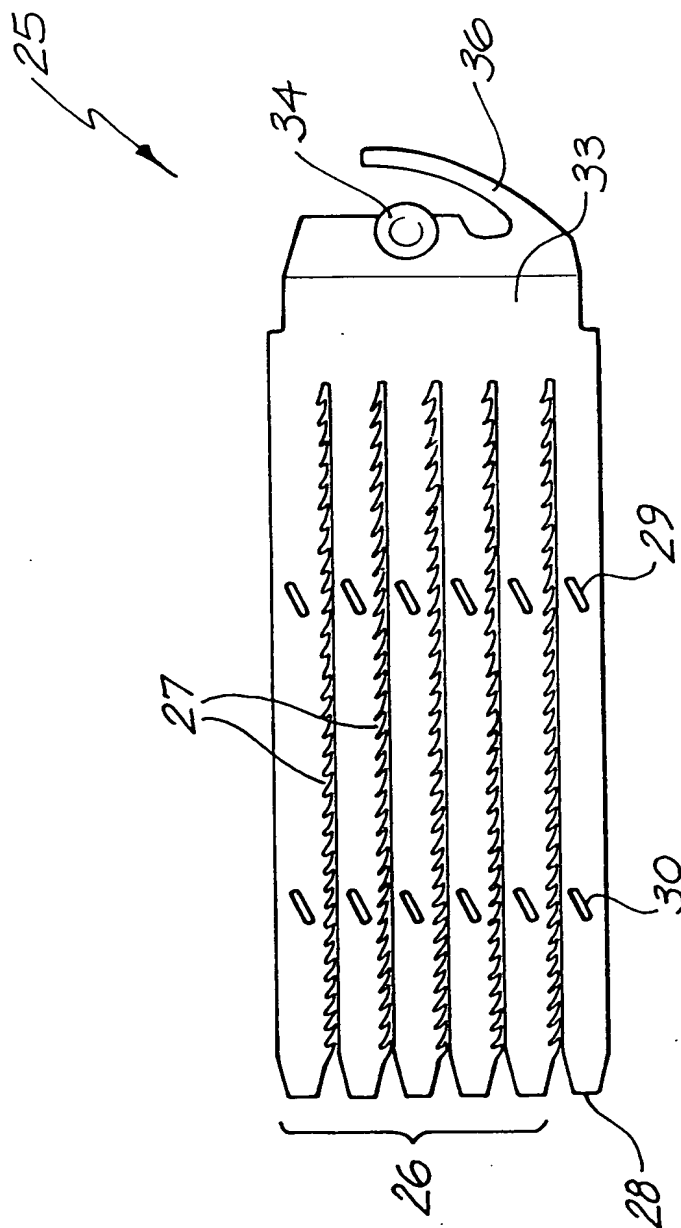


FIG. 6

## INTERNATIONAL SEARCH REPORT

International application No.

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**A. CLASSIFICATION OF SUBJECT MATTER**Int Cl<sup>6</sup>: A45D 8/24, 8/30, 8/32, 8/20, 24/36

According to International Patent Classification (IPC) or to both national classification and IPC

**B. FIELDS SEARCHED**

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**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 96/22036 A (SILVA) 25 July 1996 pages 5 and 6, Figures 1B and 1C	1-8, 12-13
X	EP 728425 A (KK YASUDA CORPORATION) 28 August 1996 column 1, lines 40 to 52, column 2, lines 48 to 51, column 5, lines 4 to 46	1-8, 12-13
X	Patent Abstracts of Japan, JP, 8-173232 A (LUCKY CORP KK) 9 July 1996	1-8, 12-13

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PCT/AU 99/00635

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P, X	US 5816267 A (CHOU) 6 October 1998 entire document	1-8, 12-13
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# INTERNATIONAL SEARCH REPORT

## Information on patent family members

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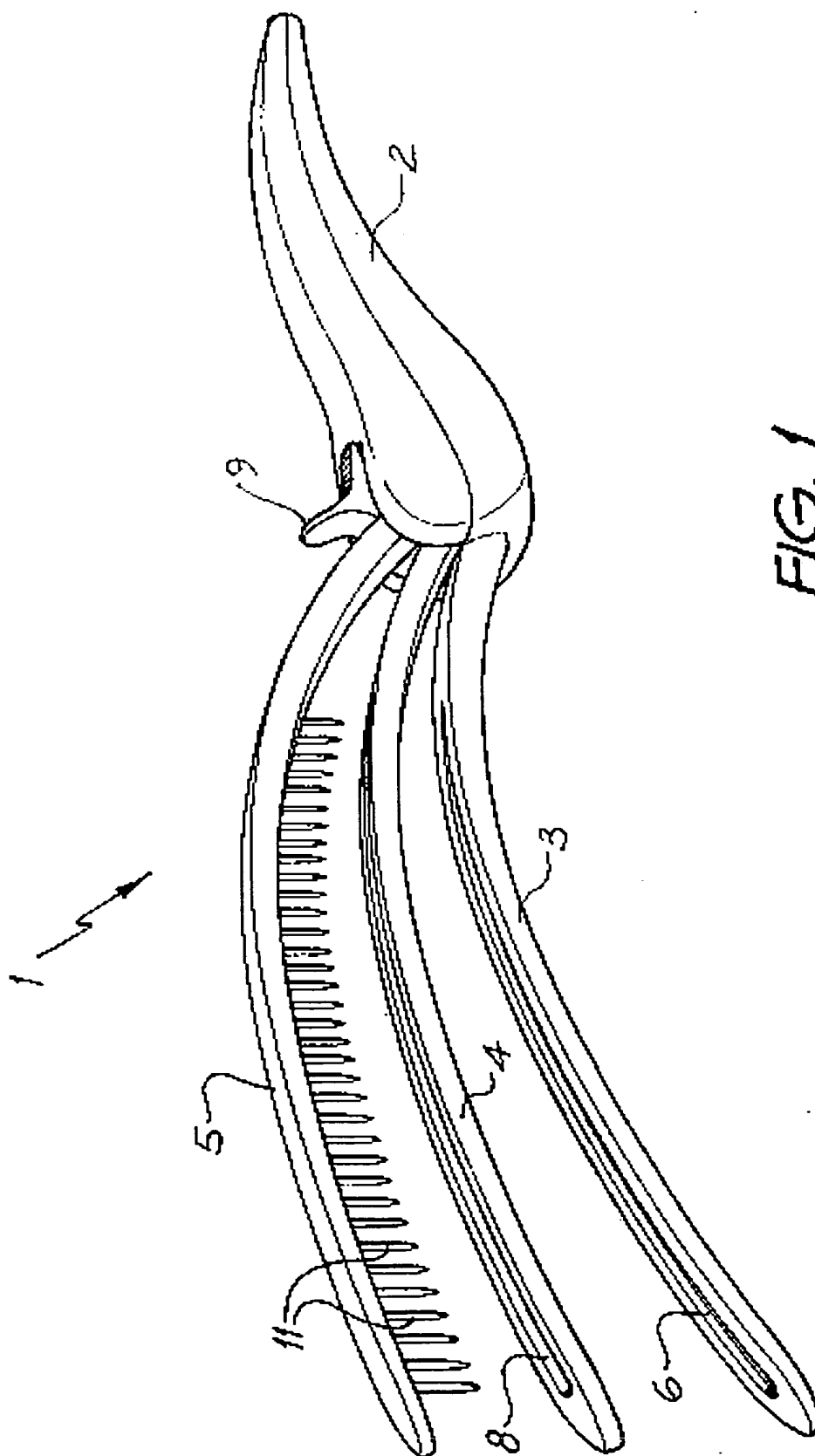


FIG. 1

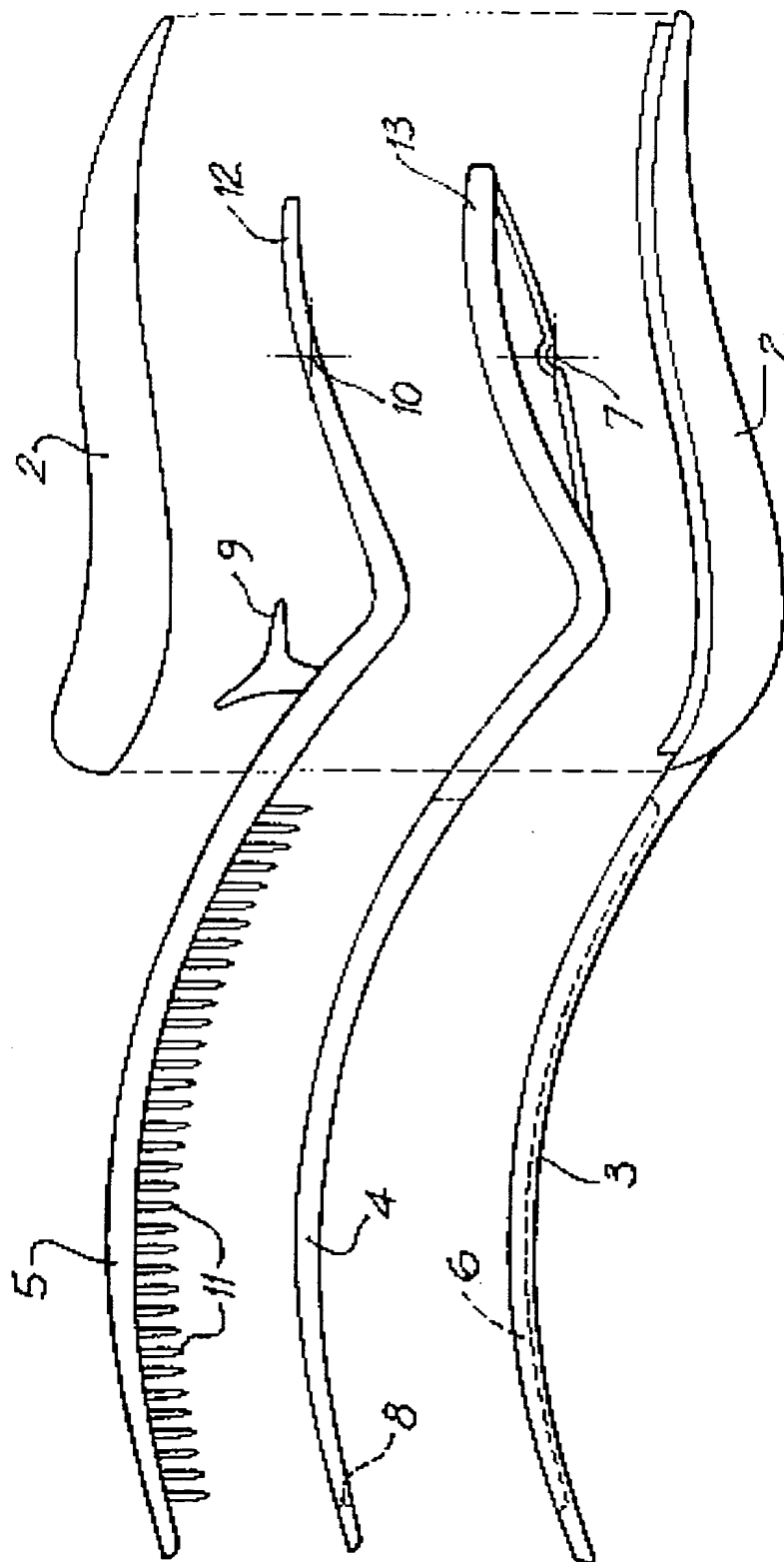


FIG. 2

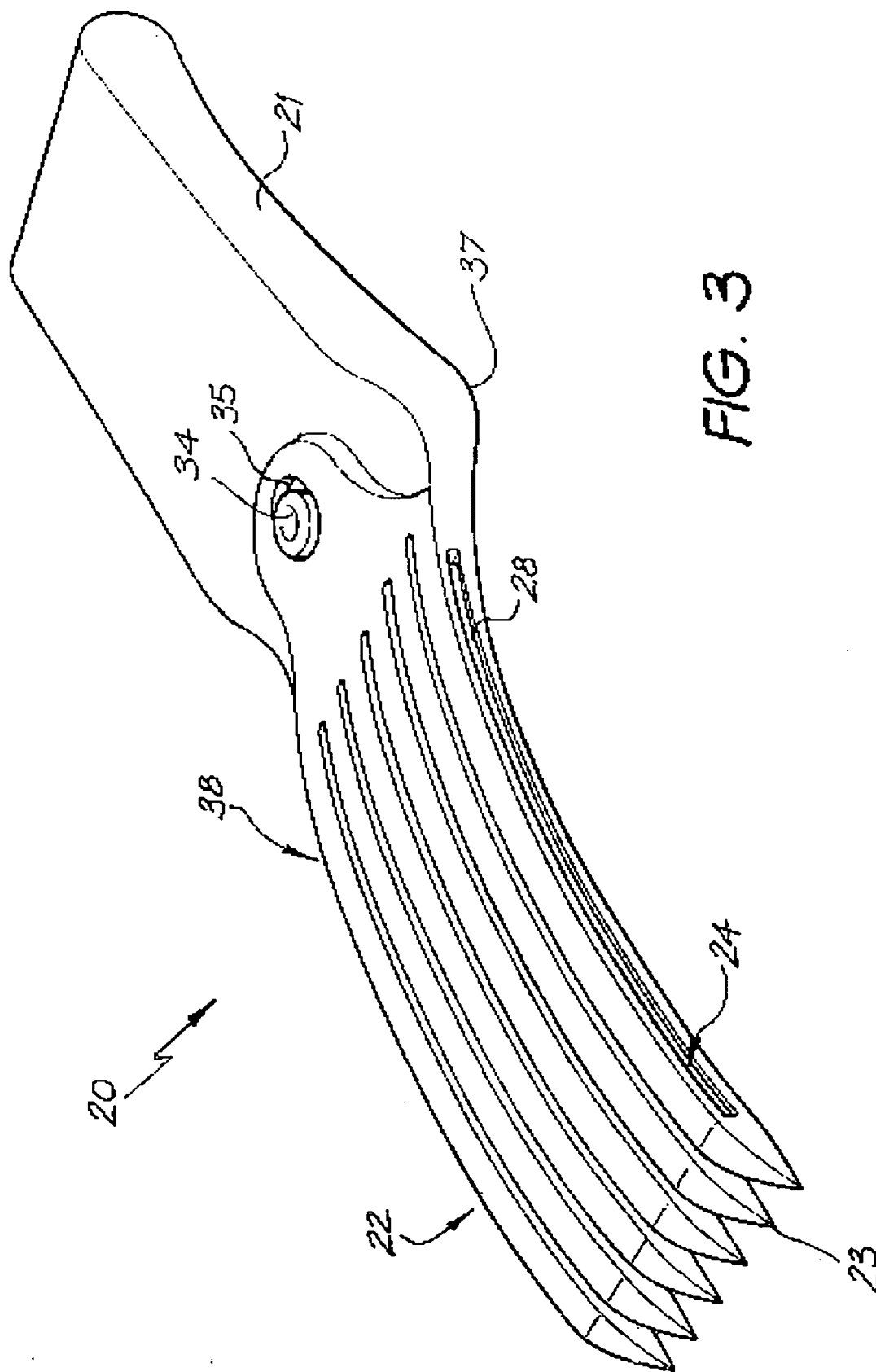
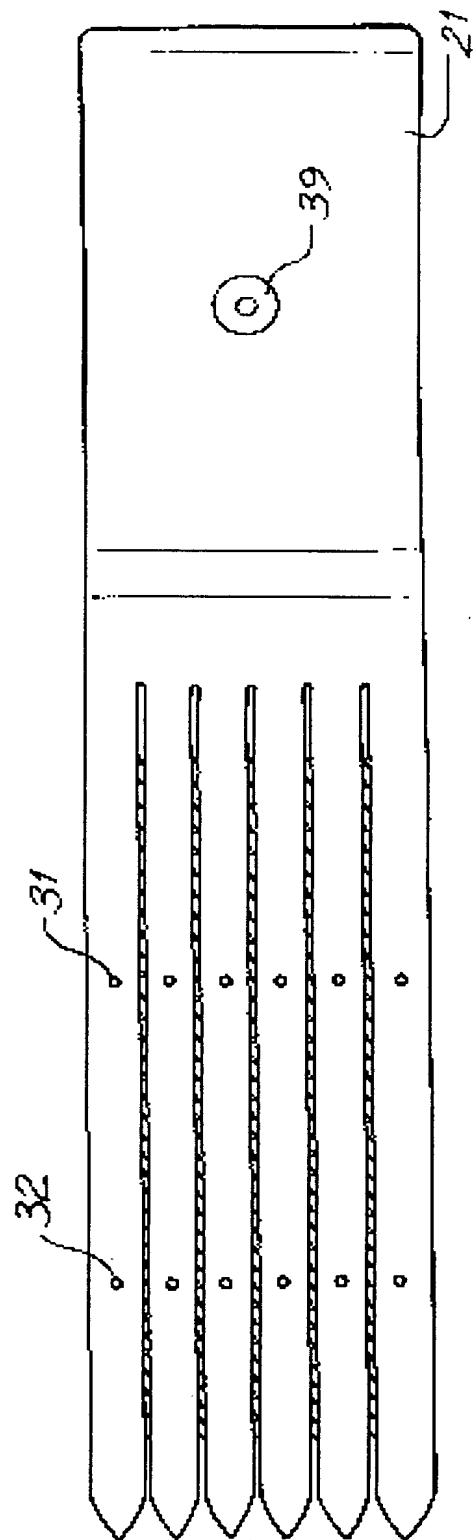
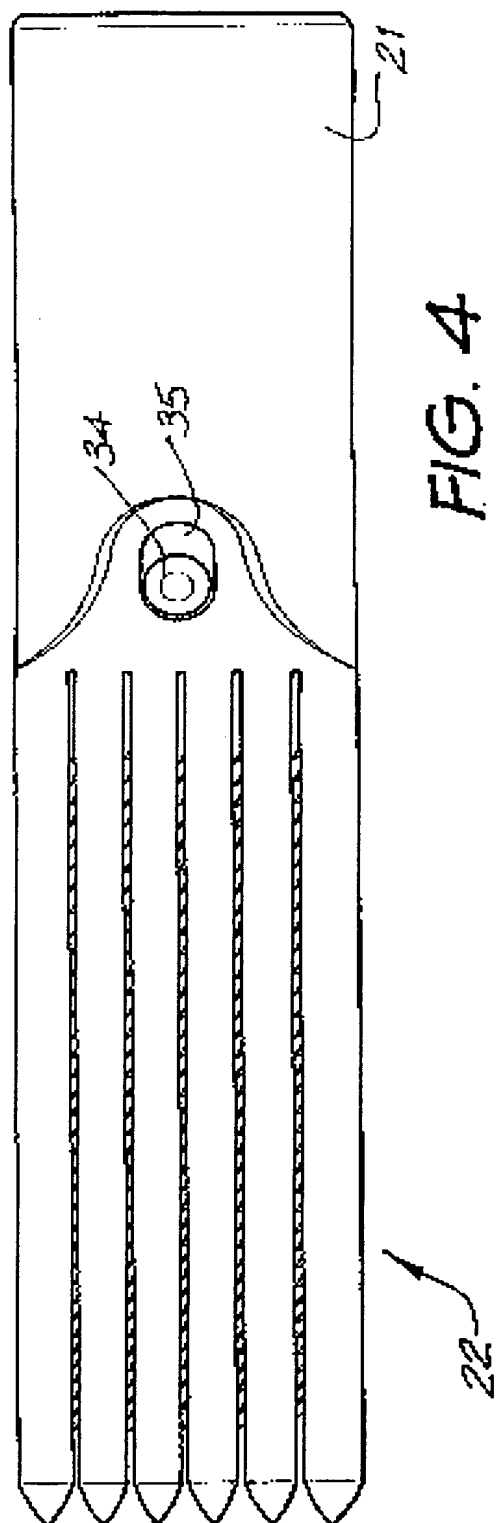


FIG. 3



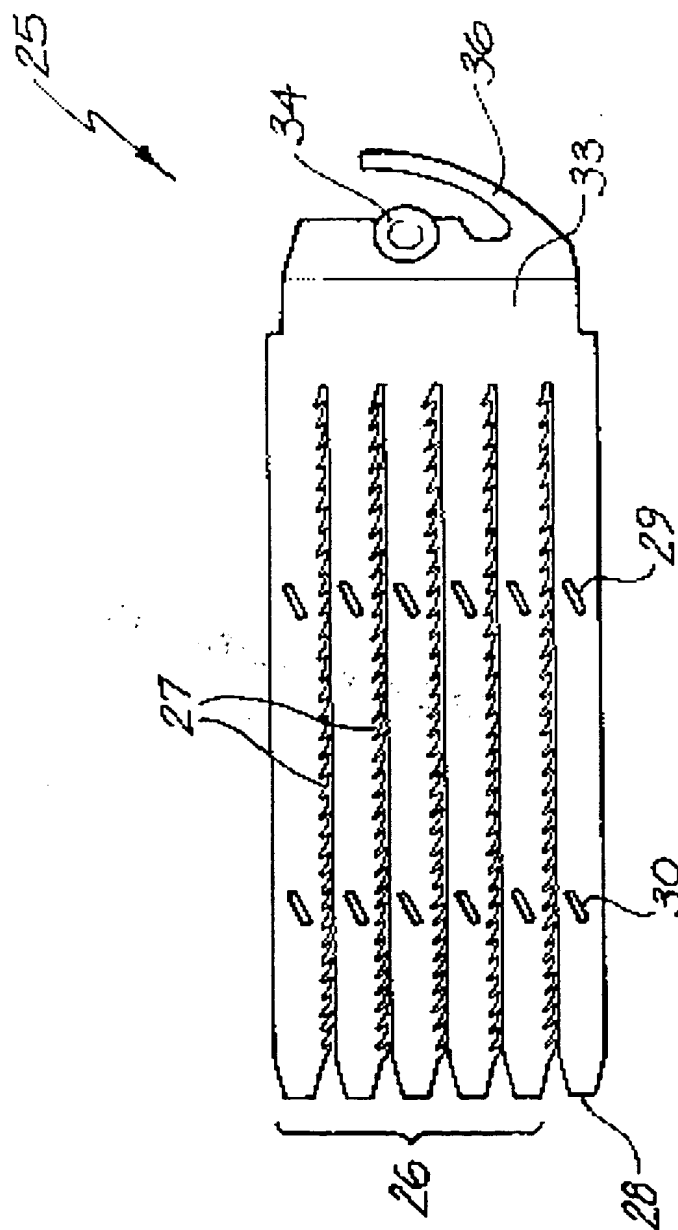


FIG. 6

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